

Name \_\_\_\_\_ Period \_\_\_\_\_

### Study Guide: Periodic Table

Use your notes to answer the following questions:

1. \_\_\_\_\_ have a positive charge, \_\_\_\_\_ have a negative charge, and \_\_\_\_\_ are neutral with no charge.
2. \_\_\_\_\_ and \_\_\_\_\_ are found in the nucleus of an atom, contributing to most of the mass of the atom, while \_\_\_\_\_ orbit the nucleus.
3. A neutral atom has the same number of \_\_\_\_\_ and \_\_\_\_\_.
4. \_\_\_\_\_ created a functional scheme with which to classify elements, now known as the periodic table.
5. In the periodic table, a column is called a \_\_\_\_\_ and a row is called a \_\_\_\_\_.
6. Another name for atomic mass is \_\_\_\_\_, the number of **protons** in an atom is the \_\_\_\_\_, and the number of **protons and neutrons** in an atom is the \_\_\_\_\_.
7. Are most elements metals, nonmetals, or metalloids?
8. \_\_\_\_\_ have properties of metals and nonmetals. They are found along the stair-step line that distinguishes metals from nonmetals.
9. \_\_\_\_\_ are malleable, ductile, have luster, and are good conductors.
10. The attraction between atoms resulting from the sharing or transfer of electrons is called a \_\_\_\_\_. The attraction between oppositely charged ions in which electrons are **transferred** from one atom to another are called \_\_\_\_\_. The attraction between two atoms in which electrons are **shared** between them are called \_\_\_\_\_.
11. Covalent bonds form between \_\_\_\_\_ and \_\_\_\_\_, while ionic bonds form between \_\_\_\_\_ and \_\_\_\_\_.
12. An atom that has lost or gained one or more electrons, giving it a charge, is called a/an \_\_\_\_\_. Positively charged ions are called \_\_\_\_\_, and negatively charged ions are called \_\_\_\_\_.
13. An anion has \_\_\_\_\_ electrons than protons. A cation has \_\_\_\_\_ electrons than protons.
14. \_\_\_\_\_ are in the highest energy level of an atom and can be gained or lost in a chemical reaction. According to the octet rule, atoms tend to gain, lose, or share electrons in order to have \_\_\_\_\_ electrons in their highest energy level.
15. \_\_\_\_\_ are found in Group 1 of the periodic table and \_\_\_\_\_ are found in Group 2. \_\_\_\_\_ are found in Group 17 of the periodic table and \_\_\_\_\_ are found in Group 18.

16. \_\_\_\_\_ are opaque elements with relatively high densities, and \_\_\_\_\_ are brittle elements.
17. \_\_\_\_\_ are useful in computers and calculators, and \_\_\_\_\_ are the 30 elements that are mostly man-made.
18. \_\_\_\_\_ are found in Groups 3 through 12.
19. \_\_\_\_\_ are very reactive, non-metallic elements because they need one more valence electron to fill their highest energy level. \_\_\_\_\_ are stable elements because their highest energy level of electrons is full. They only exist as gases.
20. \_\_\_\_\_ are the most reactive metals because they each only have one valence electron. They are also softer than most other metals. \_\_\_\_\_ are also very reactive metals, but they each have two valence electrons.
21. \_\_\_\_\_ are composed of the lanthanide and actinide series, and \_\_\_\_\_ literally means “salt-former.”
22. Iron, cobalt, and nickel are examples of \_\_\_\_\_ that produce a magnetic field.

**Use your Periodic Table to answer the following questions:**

23. Chlorine is in the \_\_\_\_\_ period and therefore has \_\_\_\_\_ energy levels. Helium is in Group \_\_\_\_\_ and therefore belongs to the chemical family called \_\_\_\_\_.
24. The **atomic number** for bromine (Br) is \_\_\_\_\_, the **atomic mass** for potassium (K) is \_\_\_\_\_, and the **mass number** for fluorine (F) is \_\_\_\_\_.
25. Oxygen (O) has \_\_\_\_\_ protons, \_\_\_\_\_ neutrons, and \_\_\_\_\_ electrons.
26. Phosphorus (P) has \_\_\_\_\_ protons, \_\_\_\_\_ neutrons, and \_\_\_\_\_ electrons.
27. An anion of iodine (I) would have \_\_\_\_\_ electrons, and a cation of francium (Fr) would have \_\_\_\_\_ electrons.
28. Sodium (Na) has \_\_\_\_\_ valence electrons, and fluorine (F) has \_\_\_\_\_ valence electrons.
29. Draw an atom of boron (B) below. Be sure to include the correct number and location of protons, neutrons, and electrons.
30. Draw an atom of sulfur (S) below. Be sure to include the correct number and location of protons, neutrons, and electrons.